Giovanni News

From the Editor:

Giovanni will make an appearance at the Global Precipitation Measurement (GPM) mission Applications Workshop, June 9-10, in College Park, Maryland, at a hands-on user session, and then be presented as a poster at the International Ocean Color Science meeting in San Francisco, California a week later.

The development team is still working on getting Giovanni-4 ready for the closure of Giovanni-3, which will take place on August 31, 2015. Planned development includes implementation of color palette options, a newer and faster time-series function (the output should look the same but plotted faster), and units conversion capability, which is just about completed.

Our users might find of interest the researcher profiles on the Earthdata Web site (http://earthdata.nasa.gov). Adnan Al-Azri and Gregory Jenkins, who both gave presentations at the 2nd Gregory G. Leptoukh Online Giovanni Workshop, were recently featured.

In this issue: Discussions of two recent papers of interest, looking at MERRA winds in the Southern Hemisphere, a new slogan, and how to get ASCII time-series data from Giovanni-4.

Jim Acker, *The Giovanni News* Editor

The crab plover and the *Ostrich* : Giovanni makes a debut appearance

The compilation of papers on research that has used Giovanni has discovered publications in many different journals. One with a particularly memorable name is *Ostrich: Journal of African Ornithology.* The following paper marks the first appearance in this journal for Giovanni: "Food abundance explains the breeding season of a tropical shorebird, the Crab Plover *Dromas ardeola*," by De Marchi, G., Chiozzi, G., Semerec, D., Mebrahtu, Y., Tayefeh, F.H., Almalki, M., and Fasola, M. According to the abstract, the crab plover is a colonial shorebird endemic to the northwestern Indian Ocean. The researchers studied crab plovers in Eritrea. After examining several different environmental factors, they found that only the average annual chlorophyll *a* concentration, a "proxy of marine productivity," was significantly correlated with the start of the breeding season. Below, a crab plover enjoys what is presumably its favorite seafood item.

doi: 10.2989/00306525.2015.1030465

Erythemal Dose Rate, May 1–6, 2010

A LESSER-KNOWN HAZARD OF MARITIME COMMERCE: SUN EXPOSURE

It should be rather obvious that working on the deck of a ship at sea is likely to expose workers to quite a bit of sunshine. The potential hazards of skin damage due to prolonged solar exposure, including prematurely-aged skin and forms of skin cancer, are well-known. Thus, determining how much exposure to the Sun that seafaring workers receive may assist with determining ways to reduce exposure and reduce the risk caused by sun exposure.

The most dangerous regions for sun exposure at sea are the subtropical and tropical oceans. In their paper, "Validation of modeled daily erythemal exposure along tropical and subtropical shipping routes by ship-based and satellite-based measurements" (*Journal of Geophysical Research*, **120**, doi:10.1002/2014JD023005), researchers Uwe Feister, Gabriele Meyer, Gudrun Laschewski, and Christopher Boettcher used Giovanni as part of their study of global daily sun exposure. The goal of the study was to validate the Personal Erythemal Exposure (PEREX) model for seafaring workers. To accomplish this, several different data sources were consulted, which included daily ultraviolet radiation measurements taken onboard a research vessel for two years; calculations made by a radiative transfer model for cloudless conditions; and two years of daily erythemal exposure data from the Ozone Monitoring Instrument (OMI) on the Aura satellite. Giovanni was acknowledged and cited as the source of the OMI daily erythemal exposure data. The paper states, "to our knowledge, this is the first comparison between UV forecast data of erythemal exposure, satellite-based data, and ship-based measurements over the oceans." The researchers concluded that the PEREX model agreed sufficiently well with the validation data sources, so it could be used to calculate PEREX on shipping routes. Two sources of uncertainty were the calibration of the ship-based instruments and the influence of atmospheric aerosols. Atmospheric aerosol data used in the model were acquired from the Moderate Resolution Imaging Spectoradiometer (MODIS), the Total Ozone Mapping Spectrometer on the Earth Probe satellite (TOMS-EP), and the Global Aerosol Data Set.
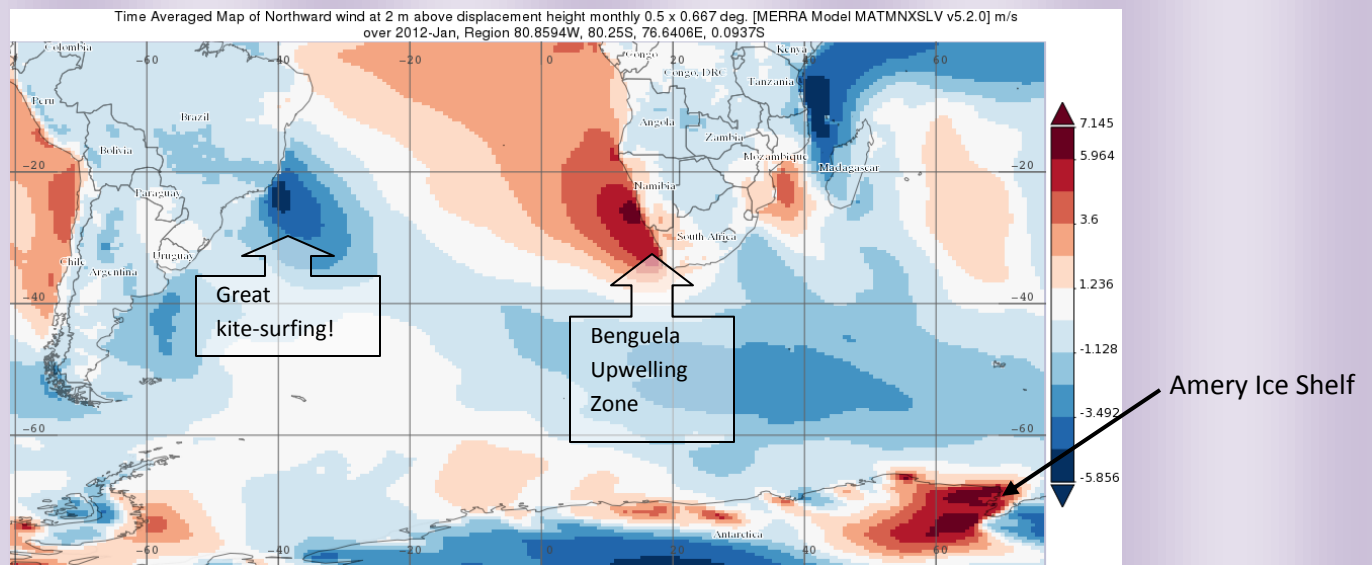
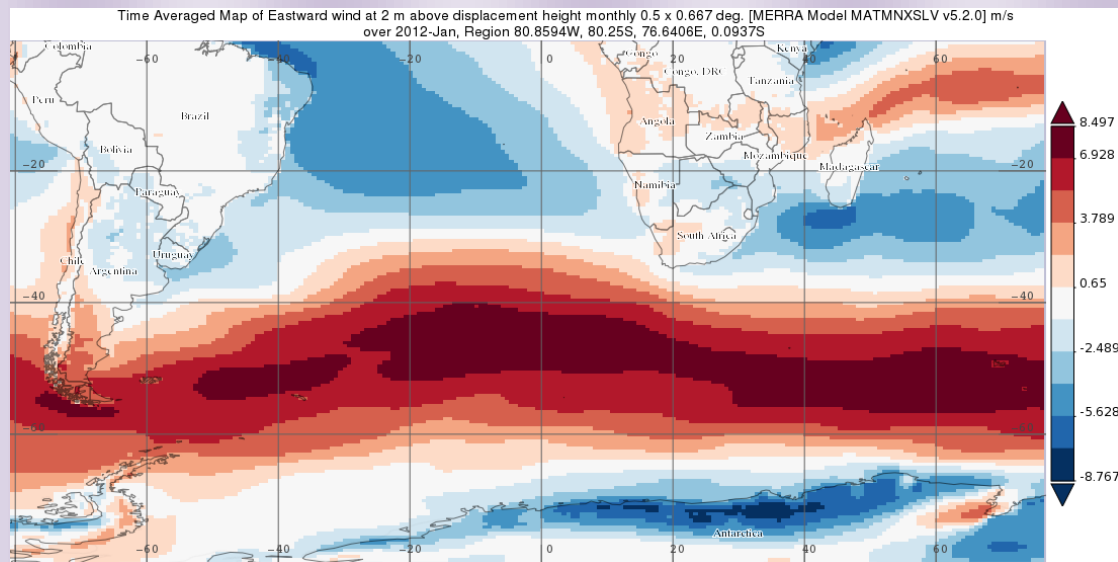Enhance perceptions and provoke insights into how the Earth system works.

http://giovanni.gsfc.nasa.gov

Looking at MERRA wind data over the Southern Ocean with Giovanni-4

While waiting for new wind data products to appear in Giovanni-4, including those from the Aquarius mission, users can work with currently available wind data from the Modern Era Retrospective-analysis for Research and Applications (MERRA) data set. MERRA provides Northward and Eastward monthly winds at 2 meters above displacement height.

One of the windiest regions of the world is the Southern Ocean. A map of Southern Ocean northward winds in January 2012 shows a strong area of winds adjacent to the Amery Ice Shelf on the Antarctic continent. The winds that drive the Benguela Upwelling Zone along the southwest coast of Africa, as well as Brazil's best wind- and kite-surfing area, are also quite obvious.

Time Averaged Map of Northward wind at 2 m above displacement height monthly 0.5 x 0.667 deg. [MERRA Model MATMNXSLV v5.2.0] m/s over 2012-Jan, Region 80.8594W, 80.25S, 76.6406E, 0.0937S

Great kite-surfing!

Benguela Upwelling Zone

Amery Ice Shelf

The Southern Ocean eastward wind component is dominated by the prevailing westerlies, which is the common case every month of the year. Appropriately, the area between 40°S and 50°S is known as the "Roaring Forties." It's easy to see why.

Time Averaged Map of Eastward wind at 2 m above displacement height monthly 0.5 x 0.667 deg. [MERRA Model MATMNXSLV v5.2.0] m/s over 2012-Jan, Region 80.8594W, 80.25S, 76.6406E, 0.0937S

How to get ASCII time-series data from Giovanni-4

Several Giovanni-4 users have recently asked how to get ASCII text data for time-series visualizations in Giovanni-4. While that's easy to do, it isn't immediately obvious where to get them. So this short demonstration shows how to get the ASCII time-series data.

First, let's make a time-series. Below is a screen capture of a one-week time series of NASA Ocean Biogeochemical Model (NOBM) assimilated total chlorophyll off the coast of Oman for the first week of July 2008. Notice the **History** section over on the right.
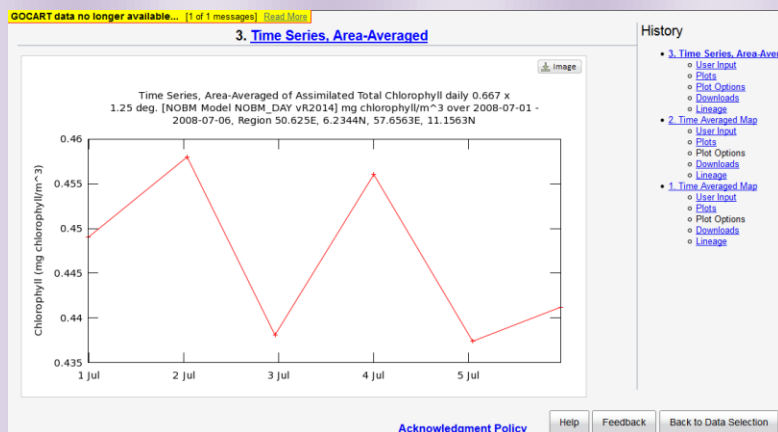
Here's a close-up of the History section.

The next step is to click on the "Downloads" link under "Time Series, Area-Averaged." This is the result:

As you can see, the ASCII text data are available for download as a ".csv" (comma-separated values) file. Clicking on the link invokes download options, one of which is to open the file in Microsoft Excel. Doing that puts the data right into an Excel spreadsheet, which looks like the image below (with some long lines of information cut off to the right). **That's it!**